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roses, of which the Virgin-wreath is composed, possess, in protecting the heroine from the effects of the fatal bullet fired by her lover in the last scene.

R.

DER FREISCHUTZ.

Act 1st.—Scene 1st.

[*A woody country, with a hermitage; near which is an altar of moss; behind this a crucifix, completely surrounded by white roses in full blossom.*]

Hermit (kneeling before the altar)

All Merciful! in good abounding,
Whose praise in heaven and earth is sounding,
Hear thy suppliant impart
The homage of a grateful heart.

[*Folds his hands, and supports his face upon the altar, in the attitude of prayer: a pause, during which music. The Hermit then raises his head hastily, with a convulsive action, as if much alarmed.*]

Hermit—O vision, dreadful to the eye;—
Avert it Mighty Lord on high!
I saw——(why does my weak frame shudder?)—
I saw the Fiend of Darkness mutter.
With joyful and malicious eye,
He stretched—(I feel my heart's blood freeze)—
He stretched his giant arm to seize
A pure, and yet unspotted lamb;
'Twas Agatha,—his eager palm
Seem'd, too, with anxious greed to watch
Her lover, and his soul to snatch.
Already his dark visage seemed
With hot and damning joy inflamed.

[*With fervent devotion.*]

Lord! accept an old man's prayer,
Avert, avert, this deed of fear;
Protect them, Father, in that hour,
From the Arch-fiend's craft and power.

[*He rises, and advances.*]

What could it be?——I feel as if I had been buried, And were now again restored to light. My life is solitary, and my couch is hard; the blood creeps coldly in the old man's veins; then visions come from God. Oh all ye saints! for three days I have not seen Agatha, and already does the shadow of the cloister-bell appear on yonder bushes, and announce the approach of evening. But yonder—if my eyes deceive me not—Yes, 'tis she.

[*Enter Agatha with a jug of milk; Anna follows her with a small basket, which she delivers to Agatha as she enters.*]

Agatha (to Anna)—Thanks, Anna.

[*Exit Anna.*]

Hermit—Blessings on my daughter; thou hast tarried long.

Agatha—But you are well, I hope, my reverend father? I should have come yesterday, or the day before, but this fruit, which I had reserved for you, would not ripen sooner. There father, and take this bread, and this little pitcher of milk—other refreshments, you know, you will not allow me to bring you.

Hermit—The fruits are choice ones; thou dost provide for me like a daughter.

Agatha—And indeed I do love you, after my own father, more than any one.

Hermit—Were that true, what would thy Max say?

Agatha—Nay, but that is different; I spoke of filial affection only; you jest with me, you are unusually cheerful to-day.

Hermit (aside)—How is she mistaken. But thy Max is well, I trust?

Agatha—Quite so; except that he is apprehensive for the success of the trial-shot which he is to perform to-morrow.

Hermit—I have heard of it; hast thou no melancholy forebodings?

Agatha—At times, perhaps, when Max looks at me so sorrowfully.

Hermit—It grieves my heart to chase away thy cheerfulness, even for a moment; yet I am unable to conceal——

Agatha—Oh speak, reverend father; whatever comes from you, can serve only for my good.

Hermit—I cannot tell thee the precise danger which threatens thee and thy betrothed; but I have beheld a vision, which has made me unusually concerned

Agatha (alarmed)—What have you seen?

Hermit—Visions usually indicate the future but in an uncertain twilight; and mine was of this nature. Yet when I look on thee, I feel my heart oppressed.

Agatha—Then let my own and Max's happiness be doubly recommended to your pious intercession; say, will you not grant this request?

Hermit—I am but a poor, weak mortal; but of my prayers you may rest assured.

Agatha—Then, I am full of hope.

Hermit—Faithfully preserve the purity of thine own heart, so will the Almighty preserve thee.

Agatha—Farewell, then, reverend father, and forget me not in your devotions.

Hermit—God be with thee, my daughter.

[*Agatha is going, he calls her back.*]

Agatha!

Agatha (returning)—Have you anything further to say to me?

Hermit—A secret voice commands me not to dismiss thee, to-day, without a charm to shelter thee from evil. This rose-bush, the first slip of which a pilgrim brought with him from Palestine, and gave my predecessor, has grown up wond'rously beautiful. It blossoms richly each succeeding year; I collect and press its leaves, and the country people ascribe many healing and salutary virtues to the rose-water which is distilled from them. Take, therefore, some of these roses as your marriage present from my fatherly affection.

[*The Hermit breaks off some roses, and joins them into a bouquet, which he delivers to Agatha at the conclusion of the following Duett.*]

Hermit—Accept the gift which friendship proffers,
Chaste and fair like thee.
Agatha—Far more than all that fortune offers,
Shall it be dear to me.

Hermit—And should the blossom fade,
Then think, my lovely maid,
That all on earth must perish.
Agatha—The leaves I'll watch with care,
Thro' many a distant year,
Remembrance still to cherish.

Hermit—Nor yet remember less,
The rose's leaves to press,
Wherein the virtue lies.
Agatha—So suffering doth prepare
The human heart to share
More pure and lasting joys.

Hermit—Accept the gift which friendship proffers,
Chaste and fair like thee.
Agatha—Far more than all that fortune offers,
Shall it be dear to me.

[*Exeunt; the Hermit to his cell, and Agatha through the trees.*]

MAY.

From the German of Hagedorn.

BY JOSEPH SNOW.

Resounding wide through wood and vale,
With melting note, the nightingale
The balmy summer welcomes sweetly in:
Now joyous sings the soaring lark—
Now croaks again the travelling stork,
The starling chatters loud with wild and noisy din.

How cheerful flocks and shepherds seem—
How brightly fields and flowerets gleam;
How happy look earth, air, and teeming ground:
The doves redoubled cooings make,
The cool stream seeks the snow-white drake,
The merry sparrow gaily hops around.

How wisely zephyr chose yon flower,
To woo, and win with pleasing power,
As chance and change with him take place of love:
On sheaf and sprig he flutters free,
Whilst richly robed, in state sits she;
And jealous fears her gentle breast ne'er move.

How blandly now the west wind sighs,
And in life-giving gust soft flies
O'er mountain, meadow, stream, and sounding shore.
Love wakes instinctive in each heart,
And lights his flame in every part,
Where haply ne'er his flames were felt before.

Now range the villagers in rows,
"Each quickly with his partner close!
Forth! dancers forth, upon the flowery fields;"
And now, each rustic springs beside
His sweetheart; round the meadows wide,
In sportive circlets, each his fair one wields.

Not bolder, braver, erst did twine
Each Roman round his brown Sabine;
Nor freer, manlier, bore his bride away.
Oh! happy in that land who dwells,
Where sports like these each spirit swells;
For what can equal lusty peasant's play?

Cork, May, 1830.

THE BOY BY THE BROOK.

(From the German of Schiller.)

BY JOSEPH SNOW.

Wreathing garlands, o'er a fountain
Sighing, sate a pensive boy,
As he watched them patient, downwards,
With the dancing waves *deploy*,[*]
"Even like those restless waters,
Pass my happiest hours away;
Even as those fleeting flowers,
Fast my youth and hopes decay.

"Ask me not why thus I grieve me,
In life's fresh and flowery prime;
All is gladness love and joyance,
When appears the sweet spring time;
But the thousand happy heralds,
That then wake the world to life,
Wake but in this wearied bosom
Sorrows sore, and ceaseless strife.

"What to me boot all the pleasures,
With which bounteous nature teems?
One alone I see! though distant,
Near to me she ever seems:
Forth I stretch mine anxious arms,
To that lovely phantom fair,
But in vain they cannot reach her,
And I sink in dark despair.

"Come thou down, thou loveliest loved one,
Leave, oh! leave thy lordly halls,
Every blossom that Spring beareth,
Shall be strewed where thy foot falls:
Hark! the groves with song resounding,
See the streamlet sparkling swell,
Oh! in humblest hut, how happy
May two linked hearts, loving, dwell."

Cork, May, 1830.

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[*] Deploy is a bad word, introduced to eke out the rhyme, but I could not find a better.

THE TRIGONOMETRICAL SURVEY OF IRELAND.

The British government has long been desirous to possess an accurate field-survey of the united kingdom, on a scale of sufficient magnitude, to exhibit clearly the divisions of private property, and to describe the quality and other minute details of the principal divisions of large estates. For this purpose, the survey of England was commenced many years ago, under the superintendence of a corps of experienced military and civil engineers.

The leading points for the completion of the map of Great Britain having been finished, in 1824 it was thought advisable to extend the survey to Ireland; and the care of the undertaking was intrusted to Col. Colby.

The experience acquired during the survey in England, naturally led to the adoption of means conducive to greater accuracy in a subsequent survey; and some considerable improvements suggested themselves, particularly in measuring a base line—an operation which we shall presently explain.

A considerable number of the English maps have been already published on the scale of one inch to a mile, under the title of the "Ordnance Survey;" and though the scientific skill and practical address with which the great operations of that survey have been conducted, afford a specimen scarcely equalled by any similar undertaking, yet the topographical details have been very generally criticised as insufficient, and by no means commensurate with the excellence of the rest of the work.

It was determined, therefore, to construct the map of Ireland on the scale of six inches to a mile, and great part of the northern district, (as well as smaller portions in the other three provinces,) is already completed and engraved.

The English survey is little more than a splendid map, which gives the roads, the houses, the hills, and the *County* boundaries: the Irish is truly a territorial survey, giving the acreable contents of each townland, and these divisions are commonly so small, that it resembles in minuteness and accuracy of detail, a survey of a private estate, with the boundaries and quality of almost every field, and the geological properties of each district, distinctly marked.

The principal operations connected with the delineation of a large tract of country, such as a kingdom, are, first, to ascertain certain principal points at great distances from each other, and so disposed, as to their number and position, that if lines be drawn from one to the other, the whole country will be divided into a series of triangles.

This is performed by choosing elevated stations, from which other conspicuous points can be seen, and then measuring the angles under which they appear, with the most accurate instruments. Other stations are then chosen, until all the angles of the different triangles throughout the country are correctly ascertained. We have now the data for laying down all the points so observed; but as yet, we have no notion of the real distances of any of the objects, or, in other words, of the size of the country, because the angles give only the ratio which the sides of the triangles bear to each other.

It is easy to imagine that, as all the triangles are in contact, if we either know, or assume the length of a side of any one of them, we can immediately deduce the relative dimensions of all the others. It is therefore necessary to measure some one side by actual application of some standard measure—as feet, yards, or miles, by which we shall establish the distances and dimensions of the whole survey. The line so measured is technically termed a 'base line,' because it serves to regulate and give a positive value to all the calculations. When the principal points are thus fixed, the succeeding process of filling in the intervals between them, is a comparatively easy operation; and the ultimate survey of the detail presents still less difficulty. Now, were the earth a perfectly level plane, or nearly so, and were the air always clear, the general triangulation would require little more care than is necessary for land-surveying in general. Points might be chosen at convenient distances, and no considerable source of error would lie in the way of a perfect representation, save the inevitable inaccuracy of the instruments employed to measure the angles. Such, however, is not the case in reality. Mountains, lakes, and rivers, interfere to prevent the view, or remove the stations to such distances from each other, as to be visible with difficulty, after great fatigue of constant watching; and the different level of the stations so found, requires the most careful calculation.

We shall have occasion presently to notice the extreme difficulty attending this part of the survey; but, in order to give our readers a general view of the whole operation, we request they will presume the triangulation to be already effected, by the means we have described.

We proceed to the measurement of a base line. Now, it is obvious enough, that the longer this line is, the greater will be the accuracy of the whole survey; but here still greater difficulties appear than in the business of triangulation. It is easy to see a distance of forty or fifty miles from the tops of mountains across valleys; but it is very difficult to find a piece of ground of any considerable extent, so level as to enable us to measure a continued line with the accuracy requisite in establishing a base line; for the measure we use cannot, to be manageable, exceed a few feet in length. Thus it happens, that the base line always bears a very inconsiderable proportion to the whole survey, or even to the sides of the great triangles; and the shorter this line, the greater must be the minute accuracy with which it is measured; because an error, though trifling in itself, is multiplied into a sensible quantity before the work is nearly gone through.

We may here remind our readers, that inaccuracies of measurement are never very important but when they are liable to increase by frequent repetition. Thus, if we compare two yard measures, it is easy to see whether they are the same length within the 100th of an inch—a degree of accuracy more than sufficient for ordinary purposes; but if we wanted to ascertain the length of a yard, and had only one inch of it to measure, the case would be very different; for then, if we made an error of 1-100th of an inch, it would give the yard an error of 36-100ths, or more than one-third of an inch.

In measuring a line of some miles, with rods of a few feet only in length, it may be imagined that the error induced by constant repetition, would be increased far beyond that of the familiar example we have just given, supposing the causes of error to remain the same. Now, these causes are principally the expansion and contraction of the rods employed, in different states of the atmosphere. All substances expand by heat, and contract by cold, but in very various degrees; for instance, among the metals, brass is more expansible than steel, and lead more so than either. Wood alters its length by change of temperature less than any metal, but still it is affected to a considerable degree; besides which, its expansion is influenced by moisture—a circumstance that renders it unfit for any very nice measure. There being no substance in nature which is adapted singly to form an invariable standard of length, recourse was had to the method of compensation, on the principle of that already practised with the pendulum,—namely, by making two rods, one of brass, the other of steel. They were ten feet long, and placed parallel, about two inches from each other. The ends were connected by cross pieces, fixed to each bar by a pivot, and projecting two inches beyond the bars. At the ends of these cross-pieces was a small plate of silver, having a minute dot so situated that the superior expansion of the brass rod, beyond that of the steel one, caused this dot to retain its place, whatever change of temperature the apparatus might be exposed to. The rods were enclosed in wooden boxes, standing on trestles, and provided with the most careful adjustments in every direction. The ends of the rods did not touch as they were put successively in advance; but a box provided with two microscopes was fixed between the ends of the bars,—the distance between the centres of these microscopes was six inches,—and they were also mounted on the principle of compensation. The dots on the cross-pieces of the rods were brought precisely into the foci of the microscopes, so that the space advanced by every shifting of the rods was 10 feet 6 inches. This apparatus was executed by those eminent mechanicians, Messrs. Troughton and Sims, and comprised a great variety of ingenious contrivances of difficult execution, which it is impossible to render intelligible by mere description. The principle alone, we trust we have explained, and it therefore remains for us to advert to the actual operations performed by this curious mechanism.

The position which seemed to offer the least difficulty was a flat piece of ground, on the east shore of Lough Foyle, in Londonderry. The ground, for the distance of seven miles and three quarters, was there sufficiently level for the purpose, but the river Roe was to be crossed; and if this had been of extraordinary depth, it would have been a fatal obstacle—unless, indeed, it had been thought worth while to build a bridge;—as it was, however, the surveyors, by driving piles, were enabled to construct a firm platform for the apparatus, quite across the stream, which was 460 feet broad. To prove the extreme accuracy of these operations, it may be mentioned that the breadth of the river was measured twice, and the two measurements differed from each other only 1-38th of an inch. A mountain prevented the further extension of the base line; but as it was thought advisable that it should be ten miles long, it was continued to that extent by careful triangulation; and it was presumed that the greatest error did not amount to more than half an inch in the whole line.

Having thus traced the leading features of the survey, we may be permitted to mention some interesting facts attending the operations.

With respect to the great triangulation, the stations were often recognized at distances which seem scarcely credible, considering the generally hazy atmosphere which prevails in northern latitudes near the sea. The extraordinary light produced by exposing quick-lime to the action of oxygen and hydrogen gases, was found to be visible at an immense distance in the night-time, while the ingenious contrivance, called the Heliostate, which reflects the sun's rays from a mirror constantly to one point, was resorted to by day. These aids were so efficacious, with the assistance, moreover, of powerful telescopes, that we find, among the many observations during the triangulation, that objects were recognized at the following extraordinary distances:—101, 98, 93, 101, 85, and 107¾ miles; and, in one instance, when making an observation across the Channel, from a mountain in Pembrokeshire, to one in the county of Wicklow, in order to connect the survey of Ireland with that already performed in Wales, the distance seen was 108 miles; but, to give an idea of the difficulty attending such operations, it is sufficient to state that the observer, in this case, waited five weeks before he could accomplish his purpose.

During the whole of this survey, above 600 persons, of different conditions, were, and are still constantly employed, either in measuring, calculating, drawing, engraving, or performing the laborious part of the undertaking; the consequent expense, as may be imagined, is very great; but we are happy to bear ample testimony, which we do from our own long and careful observation, to the zeal, ability, and diligence of the officers under whose superintendence the work is conducted.

For the greater part of the foregoing information, we are happy to acknowledge our obligations to Mr. Faraday. The topographical details yet remain untouched; but as our private resources fortunately enable us to throw considerable light on this most interesting and important subject, we shall feel happy to resume it ere long.

HIGH-WAYS AND BYE-WAYS IN IRELAND.

BY AN ANTIQUARY.

No. III.

Antiquary.—Why is it, Mr. President! that in the candour of my nature I must alternately reflect your praises and your censures?

President.—The caprice of a minstrel *boy!* "amant alterna camœnæ."

Antiquary.—No sooner had I begun to pat and caress you, than I am cruelly convinced "my hand was on the Lion's mane."

President.—Ha! apropos, the *Zoologicals* may——

Antiquary.—Nay, Sir! I must be heard. I have dedicated certain HIGHWAYS AND BYEWAYS